LISTING OF THE CLAIMS

Please amend claims 21, 31 and 36 as follows:

1 – 20 (Canceled)

21. (Currently Amended) A method for simulating structural responses of a compressible material in a finite element analysis, the method comprising:

defining a plurality of finite elements and a strain-stress curve to represent the compressible material;

calculating a plurality of stress function f(λ) values~~ without using coefficients μ and α to fit the strain-stress curve in a trial-and-error manner~~, with each value at a particular stretch ratio λ of interest, independent of curve fitting determination of material constants of Ogden strain energy function, wherein each of the plurality of stress function values equals to summation of a sequence of $\lambda^{[-\upsilon]^j}\ \sigma_0\left(\lambda^{[-\upsilon]^j}\right)$, where j is an integer related to j-th term of the sequence, ~~λ is a particular stretch ratio of interest, ~~ν is Poisson's ratio of the compressible material, ~~μ and α are unknown material constants, ~~and $\sigma_0\left(\lambda^{[-\upsilon]^j}\right)$ is the stress value at $\lambda^{(-\upsilon)^j}$ defined by the strain-stress~~stress-strain~~ curve for the compressible material;

storing the plurality of stress function values into a lookup table; and

evaluating element stresses, representing structural responses, in a local coordinate system from the lookup table in accordance with a set of principal stretches at each integration point of each of the finite elements in the finite element analysis of a structure including the compressible material.

22. (Previously Presented) The method as recited in claim 21, wherein the stress-strain curve is obtained from a physical experiment of the compressible material under a uni-axial loading condition.

23. (Previously Presented) The method as recited in claim 21, wherein the stretch ratio is a ratio between deformed length divided by original length of the compressible material in one direction.

24. (Previously Presented) The method as recited in claim 21, wherein the sequence has a total of **m** terms, and **m** is a positive integer, and the term of the sequence starts from **0** to **m-1**.

25. (Previously Presented) The method as recited in claim 21, wherein said calculating step is completed when absolute value of | $\lambda^{(-\upsilon)^j}$ -1| is less than a threshold.

26. (Previously Presented) The method as recited in claim 25, wherein the threshold is defined as 0.01.

27. (Previously Presented) The method as recited in claim 21, wherein the element stresses include nominal stress and true stress.

28. (Previously Presented) The method as recited in claim 21, wherein the set of principal stretches is obtained by solving eigensolution for deformation gradient tensor at each integration point of each of the finite element.

29. (Previously Presented) The method as recited in claim 21, said evaluating element stresses in local coordinate system further includes interpolating the lookup table to obtain the element stresses at the principal stretches.

30. (Previously Presented) The method as recited in claim 21, further comprises transforming the element stresses to global coordinate system.

31. (Currently Amended) A computer program product including a computer usable medium having computer readable code embodied in the medium for causing an application module to execute on a computer for simulating structural responses of a compressible material, the computer program product comprising:

program code for defining a plurality of finite elements and a strain-stress curve to represent the compressible material;

program code for calculating a plurality of stress function f(λ) values with each value at a particular stretch ratio λ of interest, independent of curve fitting determination of material constants of Ogden strain energy function~~without using coefficients μ and α to fit the strain-stress curve in a trial-and-error manner~~, wherein each of the plurality of stress function values equals to summation of a sequence of $\lambda^{[-\upsilon]^j} \sigma_0\left(\lambda^{[-\upsilon]^j}\right)$, where j is an integer related to j-th term of the sequence, ~~λ is a particular stretch ratio of interest,~~ ν is Poisson's ratio of the compressible material, ~~μ and α are unknown material constants,~~ and $\sigma_0\left(\lambda^{[-\upsilon]^j}\right)$ is the stress value at $\lambda^{(-\upsilon)^j}$ defined by ~~stress-strain~~the strain-stress curve for the compressible material;

program code for storing the plurality of stress function values into a lookup table; and

program code for evaluating element stresses, representing structural responses, in a local coordinate system from the lookup table in accordance with a set of principal stretches at each integration point of each of the finite

elements in the finite element analysis of a structure including the compressible material.

32. (Previously Presented) The computer program product as recited in claim 31, wherein said calculating step is completed when absolute value of $|\lambda^{(-\upsilon)^j} - 1|$ is less than a threshold.

33. (Previously Presented) The computer program product as recited in claim 32, wherein the threshold is defined as 0.01.

34. (Previously Presented) The computer program product as recited in claim 31, said program code for evaluating element stresses in local coordinate system further includes program code for interpolating the lookup table to obtain the element stresses at the principal stretches.

35. (Previously Presented) The computer program product as recited in claim 31, further comprises program code for transforming the element stresses to global coordinate system.

36. (Currently Amended) A system for simulating structural responses of a compressible material in a finite element analysis, the system comprising:

an I/O interface;

a communication interface;

a secondary memory;

a main memory for storing computer readable code for an application module;

at least one processor coupled to the main memory, the secondary memory, the I/O interface, and the communication interface, said at least one

processor executing the computer readable code in the main memory to cause the application module to perform operations of:

defining a plurality of finite elements and a strain-stress curve to represent the compressible material;

calculating a plurality of stress function f(λ) values with each value at a particular stretch ratio λ of interest, independent of curve fitting determination of material constants of Ogden strain energy function~~without using coefficients μ and α to fit the strain-stress curve in a trial-and-error manner~~, wherein each of the plurality of stress function values equals to summation of a sequence of $\lambda^{[-\upsilon]^j}\ \sigma_0\left(\lambda^{[-\upsilon]^j}\right)$, where j is an integer related to j-th term of the sequence, ~~λ is a particular stretch ratio of interest,~~ ν is Poisson's ratio of the compressible material, ~~μ and α are unknown material constants,~~ and $\sigma_0\left(\lambda^{[-\upsilon]^j}\right)$ is the stress value at $\lambda^{(-\upsilon)^j}$ defined by ~~stress-strain~~the strain-stress curve for the compressible material;

storing the plurality of stress function values into a lookup table; and

evaluating element stresses, representing structural responses, in a local coordinate system from the lookup table in accordance with a set of principal stretches at each integration point of each of the finite elements in the finite element analysis of a structure including the compressible material.

37. (Previously Presented) The system as recited in claim 36, wherein said calculating step is completed when absolute value of $|\lambda^{(-\upsilon)^j} - 1|$ is less than a threshold.

38. (Previously Presented) The system as recited in claim 37, wherein the threshold is defined as 0.01.

39. (Previously Presented) The system as recited in claim 36, said evaluating element stresses in local coordinate system further includes operations of interpolating the lookup table to obtain the element stresses at the principal stretches.

40. (Previously Presented) The system as recited in claim 36, further comprises operations of transforming the element stresses to global coordinate system.